



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
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REPLY TO THE ATTENTION OF

SR-6J

October 10, 2002

Mr. Lawrence C. Cox
General Manager
Downers Grove Sanitary District
2710 Curtiss Street
P.O. Box 1412
Downers Grove, Illinois 60515-0703

Re: Technical Review of Site Investigation Work Plan
Downers Grove Sanitary District
Ellsworth Industrial Park, Downers Grove, Illinois

Dear Mr. Cox:

The U.S. EPA, with the support of Weston Solutions, Inc. has completed its review of the above referenced document for the Downers Grove Sanitary District (DGSD), Ellsworth Industrial Park, Downers Grove, Illinois.

Background

The work plan document was prepared by the DGSD to outline proposed investigation activities for sludge lagoon characterization and evaluation of groundwater flow and chemistry in the immediate vicinity of the former wastewater treatment plant (WWTP) lagoons. These activities are being proposed as a result of groundwater contamination documented in monitoring well BD-4(I) located near the southwestern corner of the lagoons. U.S. EPA sampling of this well in June 2002, indicted the presence of trichloroethylene (TCE) at 9.2 ug/L. Confirmation sampling of this well by the DGSD in September 2002, verified the presence of TCE, although at a slightly lower level (5.3 ug/L). Both sampling events indicate TCE is present in groundwater at, or above, the MCL for this constituent.

Up to three distinct groundwater zones are present underlying the Ellsworth Industrial Park and consist of shallowed perched zones, an intermediate water bearing zone, and the bedrock aquifer. Well BD-4(I) is installed in the intermediate water bearing zone at a depth of 47 to 57 feet below ground surface (bgs). Groundwater flow direction within the intermediate zone was found to be complex and variable throughout the industrial park due to complex stratigraphic conditions. Groundwater flow maps developed during the Phase II Site Assessment (SA) indicated flow direction in the vicinity of the lagoons appears to be south-southwest based on limited data points in the area.

Section 2.1 Sludge Quality Characterization: The number of sludge/soil samples to be collected and the method/rationale for lateral sample location criteria are not specified. Since it is not known how sludge was deposited in the lagoons historically, there is a potential for non-uniform conditions to be present. Chlorinated solvent compounds, if present in sludge, may not be uniformly distributed throughout the lagoons in terms of presence and/or concentrations. For this reason, it is recommended that some form of a grid sampling procedure be employed, such that an adequate number of lateral sample locations are selected throughout the lagoons. Additionally, it is recommended that compositing sludge sample locations not be conducted as this may dilute solvent concentrations, if present, and lead to inconclusive results upon completion of sampling efforts.

The work plan indicates sludge and soil samples will be collected every 1.5 feet vertically at each sample location. This should be adequate for vertical evaluation of sludge characteristics, thickness of sludge column, and chemical characteristics of underlying soil. If the sludge column is thicker than anticipated, it is recommended that sampling continue until the sludge soil interface is encountered and an underlying soil sample can be collected for analysis. With respect to vertical sludge sampling, it is not clear whether the DGSD intends to composite sample intervals for analysis. Compositing is not recommended as indicated above.

The headspace screening method described in the work plan appears appropriate; however, compositing of sludge samples is not recommended as indicated above. Headspace screening measurements should be conducted on each discrete sample interval at each location to aid in evaluating heterogeneity and sample selection for laboratory analysis.

Section 2.2.1 Monitoring Well Placement: It is indicated in the work plan that the purpose of additional monitoring well installations is to determine the location, direction, and source of chlorinated solvents documented in BD-4(I). Four wells are proposed along the east and south sides of the DGSD property in the vicinity of the lagoons. Additional objectives cited are to determine groundwater flow direction; determine groundwater quality prior to reaching the DGSD property line; and determine groundwater quality at the DGSD property line. The proposed well locations will aid in achieving the stated objectives; however, it is noted that well placement appears to have been based on assumptions regarding groundwater flow direction which differ from that presented in the U.S. EPA Phase II SA Report. The work plan references potential use of wells SB-15(I) and MW-3(S) in determining groundwater flow direction for the intermediate water bearing zone intersected by BD-4(I) and LD-1(I). Based on hydrostratigraphic data and information obtained during the Phase II SA, monitoring wells SB-15(I) and MW-3(S) are interpreted to be part of shallow perched groundwater zones which are not hydraulically connected to the intermediate groundwater zone. This is clearly evident at the MW-3(S) location where thick low permeability clay deposits are present below the screened interval isolating groundwater from nearby deeper wells. It is less evident in the vicinity of SB-15(I) due to a lack of deeper stratigraphy information between Rexnord and the DGSD property. Based on this interpretation, groundwater elevation data from these wells were not used to formulate the potentiometric surface contour map of the intermediate water bearing zone. Pending any additional hydrostratigraphic data and information, it is not appropriate to use water levels from SB-15(I) or MW-3(S) in determining flow directions for the deeper water bearing zone represented by BD-4(I) and LD-1(I).

Notwithstanding the above described conceptual flow model, the proposed well placements will aid in further evaluating groundwater flow and chemistry characteristics. Placement of wells in the intermediate water bearing zone along the eastern and southern DGSD property lines should allow better evaluation of conditions in the vicinity of the lagoons, especially if groundwater flow direction is found to be towards the lagoons from off-site. However, if groundwater flow direction remains as currently depicted (southwest), it is possible that a DGSD source could still be postulated even if sampling indicates chlorinated solvents are not present in the sludge lagoons, since additional DGSD treatment works would be located in the upgradient direction. For this reason, we recommend that the DGSD consider installation of monitoring point(s) northwest of the lagoons. Alternately, this may be considered as a followup activity based on the results of this investigation.

Due to the complex stratigraphy and presence of potential shallow perched water bearing zones, we recommend that the DGSD also consider collecting groundwater samples from any shallow perched groundwater zones encountered during drilling of the proposed monitoring wells. This will allow a more complete characterization of groundwater flow and chemistry characteristics in the area.

Section 2.2.2 Monitoring Well Construction: The work plan indicates the proposed wells will be installed in the same gravel deposits as LD-1(I). We wish to caution the DGSD that stratigraphy is highly variable over short distances within the Ellsworth Industrial Park and attempting to set screen depth intervals based on other nearby or distant wells may be difficult. By way of example, note that LD-1(I) was drilled to 64 feet bgs and ended in a saturated gravel formation (bedrock was not encountered). However, BD-4(D) located next to BD-4(I) indicates bedrock is present under the lagoons at a depth of approximately 60 feet bgs.

Although not stated, WESTON assumes that borehole drilling and sampling will be conducted using standard split-spoon sampling and logging techniques. Each soil sample collected for logging purposes should be screened using the headspace screening procedure described in Section 2.1 to assess the presence of total volatile organics in the soil column consistent with methods used during the Phase II SA.

Section 2.2.3 Well Development: If any potable water is used during drilling and installation, an equivalent volume should be removed during well development in addition to the 10 well volumes referenced.

Depending on the ultimate formation screened and presence of many fine-grained materials, it may not be possible to obtain water visually clear of sediment as the criteria for when development is considered complete. WESTON recommends also using pH, specific conductance, and temperature field parameters as additional criteria for determining when development is considered complete after the minimum 10 well volumes.

Section 2.2.4 Sampling: Groundwater sampling should occur no sooner than 48 hours after well development to be consistent with Phase II SA investigation procedures.

During purging for groundwater sampling, a minimum three well volumes should be evacuated as described, followed by parameter stabilization measurements (pH, specific conductivity, and

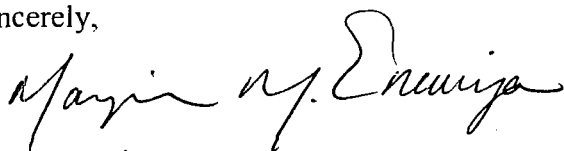
temperature) consistent with the Phase II SA.

Data Quality Management: As part of the implementation of this work plan, the U.S. EPA is requesting that all sampling and analyses performed pursuant to this work plan conforms to U.S. EPA guidance regarding sampling, quality assurance/quality control ("QA/QC"), data validation, and chain of custody procedures. The DGSD shall ensure that the laboratories used to perform the analyses participate in a QA/QC program that complies with U.S. EPA guidance, including ANSI/ASQC E4-1994, "Specifications and Guidelines for Quality Systems for Environmental Data Collection and Environmental Technology Programs," (American National Standard, January 5, 1995) and "EPA Requirements for Quality Management Plans" (QA/R-2) (EPA/240/B-01/002, March 2001) or equivalent documentation as determined by U.S. EPA. The U.S. EPA may consider laboratories accredited under the National Environmental Laboratory Accreditation Program (NELAP) to meet the quality system requirements.

The U.S. EPA is reemphasizing that the provided work plan is a simple characterization of subsurface conditions at the DGSD property, and is not to be considered a comprehensive study of subsurface conditions at the DGSD property, which is required during Remedial Investigation/Feasibility Study (RI/FS) phase for the Ellsworth Industrial Park. Characterization and investigation is an iterative process, so the results of this investigation may indicate that further work is needed.

The U.S. EPA appreciates the opportunity to review and comment on the provided work plan. If you should have any questions, please don't hesitate to contact me at 312/353-8414 or by email at enwiya.mazin@epa.gov.

Sincerely,



Mazin Enwiya, M.S.
Remedial Project Manager

cc: Mark Latham, Gardner, Carton & Douglas
Tom Krueger, U.S. EPA
James Huff, Huff & Huff, Inc.
Kurt Fischer, Weston Solutions, Inc.